



<b>Occupational Area:</b>	Asset/Site - Electrical Maintenance
<b>Job Role Examples:</b>	Electrical Maintenance Technician, Electrical Technician

## Role Overview:

Electrical maintenance technicians are responsible for the assembly, installation, maintenance, testing and fault diagnosis, repair and disassembly of a wide range of electrical plant and associated components. Typical equipment includes power generation and distribution systems (Single phase/three phase LV), Earthing systems, switch panels, transformers, motors, generators lighting systems, and circuit protection devices (Fuses, MCBs, Relays, RCDs, thermal overloads). Electrical maintenance technicians are expected to be able to diagnose the causes of electrical or electromechanical malfunctions or failures of operational equipment in a prompt and efficient manner. They must be able to interpret maintenance specifications, engineering drawings and wiring diagrams to achieve many of their day-to-day objectives.

## Knowledge & Skills:

The electrical maintenance technician will:

- Have the required competencies to install, maintain, test and diagnose for faults and disassemble a wide range of electrical plant and associated components to the required standard while adhering to health, safety and environmental regulations and safe working practices, and taking into account environmental and sustainability considerations.
- Understand the relevant legislative, regulatory and local requirements or procedures and safe working practices, including their responsibilities with regards to reporting lines and procedures.
- Understand the preparation and reinstatement requirements in respect of the work area, materials and equipment, and the possible consequences of incorrect actions in these areas.
- Be able to read and interpret relevant engineering drawings, related specifications, quality standards and equipment manuals, and to follow work instructions and relevant plans and schedules.
- Where necessary, ensure that 'as built' drawings are updated and circulated as per organisational policy.
- As necessary, put forward suggestions and develop modification requests to improve plant/equipment efficiency/safety of operations.
- Understand which tools and equipment to use, and when, and will follow relevant training, methods and techniques and quality control and safety procedures for their use.
- Understand their responsibilities for ensuring the care and security of tools and equipment used.
- Understand the types of defects and faults that can occur, how to identify them, and what action to take.
- Be able to handle a range of digital information, technology and equipment to support work related tasks and to communicate information.

## Technical Competencies:

Electrical fault diagnosis is a key competency across all the activities below and has been incorporated into the individual test activities.

- **TEM03 - Testing Portable Equipment** - safely and accurately inspect and test portable electrical equipment using appropriate tools, equipment and techniques.
- **TEM05 - Battery and UPS Systems** - check the condition of battery cells, take voltage readings making comparison to the manufacturers recommendations and check the functionality of the battery-supported UPS equipment; prepare the equipment and reinstate after the work has been completed safely.
- **TEM06 - Inspect, Test and Maintain Industrial Switchgear Equipment** - safely and competently inspect, test and maintain industrial circuit protective equipment using appropriate equipment, tools and techniques.
- **TEM10 - Hazardous area inspection of electrical equipment** - safely carry out a visual, close and detailed inspection of electrical/instrumentation equipment in a defined hazardous area.
- **TEM14 - Periodic Inspection of a Three-phase System** - carry out the periodic inspection and testing of three-phase plant and equipment in an industrial environment, including visual inspection of associated equipment.





### Behaviours:

- Establish and maintain effective working relationships, communicate effectively, and work inclusively to deliver work within given specifications.
- Demonstrate team working skills and interact with team members in a positive and professional manner.
- Work within an overall risk control strategy which has been developed by safety specialists and includes detailed criteria for identifying risks, together with clearly defined procedures for action which must be followed.
- Take personal ownership of, and responsibility for, completing tasks and procedures. Follow procedures and relevant codes of conduct with integrity and rigour and complete actions and documents accurately and honestly.
- Take responsibility for identifying and reporting instances where procedures or work instructions cannot be met or where a variation in them is required.
- Deal promptly and effectively with problems within their control and report those that have been, and those that cannot be, solved.
- Take responsibility for supervising and mentoring others where appropriate.
- Demonstrate the ability to coordinate work scopes and simultaneous operations (SIMOPS) effectively within a wider team, as required.
- Demonstrate effective handover of responsibility and equipment at the end of a task.
- Take responsibility and ownership of personal development, set targets to plan on how these will be achieved.
- Support operational requirements, achieve targets and maintain records as required, thereby minimising backlog and downtime.
- Maintain compliance with legislative requirements and company policies, procedures and standards.
- Maintain and demonstrate ongoing technical competence and skill set to current standards and updates.
- Support innovation and development for improvements

### Determining Work scopes:

Other categories of workers may be mobilised to complete certain stand-alone activities/work scopes within the electrical maintenance discipline. Relevant technical tests for those workers are identified below

- PAT testing – Test Reference TEM03
- Ex Inspections – Test Reference TEM10
- Relay Protection Testing – Test Reference TEM06

Although appropriately qualified for these specific work scopes, it should be noted that without the full suite of electrical maintenance tests the person should not be deemed as demonstrating full 'currency of competence' across the electrical maintenance discipline.

Where different sectors have additional specific competency requirements, these are also highlighted in the accompanying **Supporting Notes for Connected Competence**.



The Connected Competence standard role profile for an electrical maintenance technician sets out the knowledge and skills, technical competencies and behaviours that are expected from a fully competent electrical maintenance technician in any sector of the engineering construction industry. Attainment of these is achieved through training and on-site experience/exposure and is measured through standardised assessment. Once competence is achieved, regular testing ensures that ongoing competence is maintained.

This supporting document highlights additional requirements that are specific to any engineering construction sector.

### Sector Specific Competency Requirements

#### OFFSHORE - OIL & GAS

##### Prerequisite/Premobilisation Qualification Requirements

Prior to embarking on the formal assessment cycle, an individual would be expected to have core trade qualifications as a minimum requirement:

- ECITB or other relevant apprenticeship, or HNC/D with appropriate experience
- Valid Ex competency certificate and Electricity at Work Regulations
- Valid Connected Competence knowledge-only test or superseded by valid technical tests

Given the hazardous nature of the working environment, the overall risk control strategy for organisations within the offshore industry will usually require electrical maintenance technicians to be familiar with, and work within, a formal Permit to Work system. Compliance with a specific company or site safety management system (SMS) will also usually be required. Specialist safety training may also be required as a prerequisite in addition to role specific training.

Electrical maintenance technicians will be expected to be LV Authorised and to have had adequate training in the relevant current IEE Regulations.

In addition to the core technical competence tests, fully competent electrical maintenance technicians will be expected to have achieved:

- Relay protection training
- LV/HV switching and isolating procedures training
- HV Authorisation
- SAEP Authorisation

Within the offshore sector, electrical maintenance technicians may also be required to witness cable tests and test runs of vendor/specialist repaired equipment/plant and sign documentation to verify acceptance.